June 24, 1998

Mr. Fraser R. Sime
Environmental Specialist
California Department of Water Resources
2440 Main Street, Room 23
Red Bluff, CA 96080

SUBJECT: Survey of Potential Special-Status Shrimp Habitat at Potential Offstream Water Storage Sites for the California Department of Water Resources

Dear Fraser:

This letter report presents the methods and results of the surveys for potential special-status shrimp habitat at the Sites, Colusa, Red Bank, and Thomes-Newville potential offstream water storage sites (Figure 1). (One set of proposed project site maps is enclosed.)

Jones & Stokes Associates' (JSA's) invertebrate ecologists and the California Department of Water Resources (DWR) staff members performed reconnaissance-level surveys for potential special-status shrimp habitat at these potential reservoir sites. Christopher Rogers of JSA and Fraser Sime of DWR were the project managers and preparers of this document.

This survey is part of a prefeasibility study to determine suitability for construction of potential future water storage sites. Five reservoir scenarios were evaluated: Sites Reservoir, Colusa Reservoir, Sites/Colusa Reservoir, Red Bank Reservoir, and Thomes/Newville Reservoir.

The results are summarized below under "General Discussion" and in Appendix A, Table A-1.

METHODS

Special-status shrimp include species in the following categories:

- shrimp listed as threatened or endangered under the federal Endangered Species Act (ESA) (50 CFR 17.11 for listed animals and various Federal Register notices for proposed species) and:

- other shrimp species meeting the definition of rare, threatened, or endangered under the California Environmental Quality Act (CEQA) (State CEQA Guidelines, Section 15380).

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2600 V Street, Suite 100 • Sacramento, CA 95818-1914 • Fax 916/737-3030 • 916/737-3000

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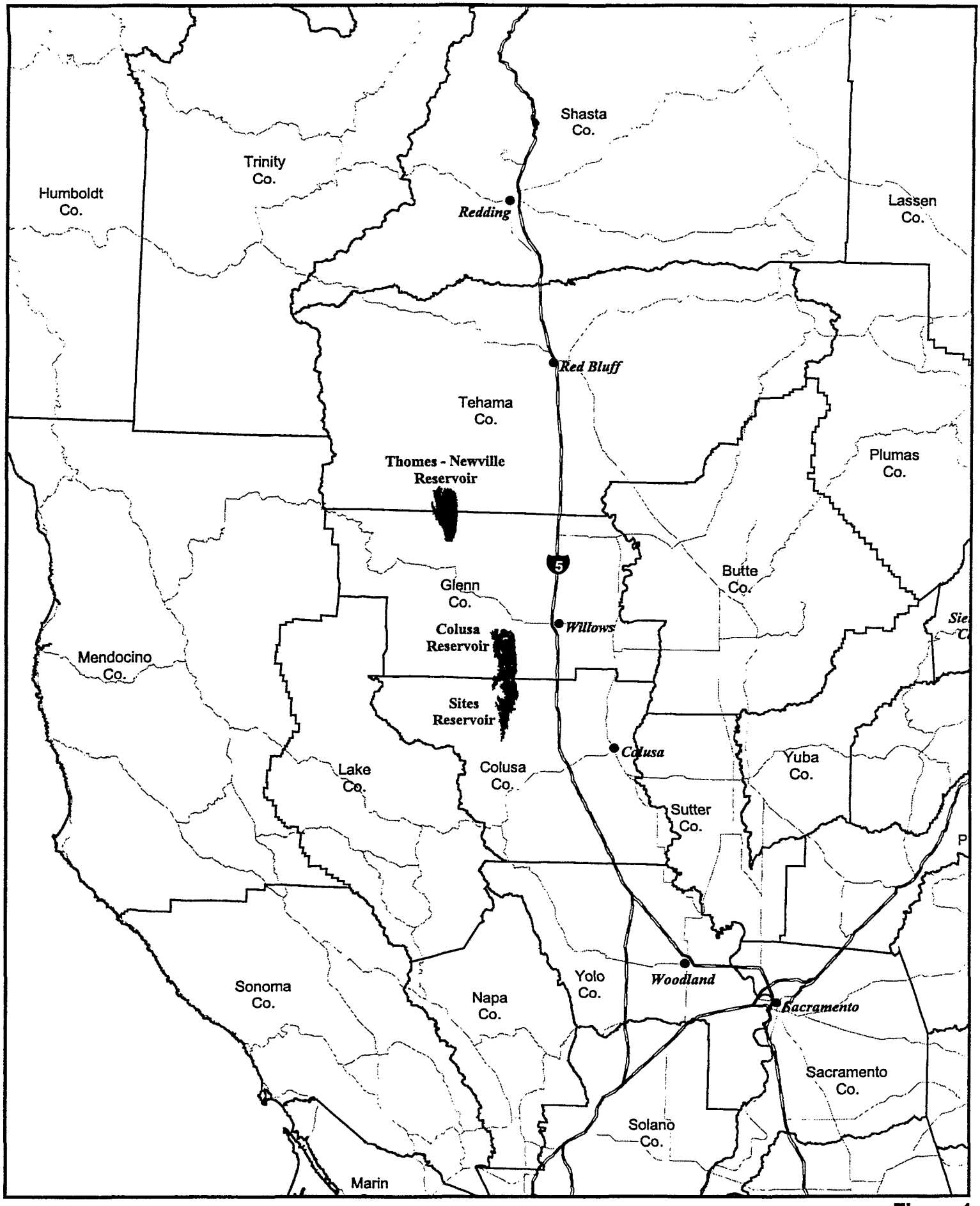

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Figure 1
Site Vicinity Map

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The surveys focused on identifying potential habitat for the federally listed as threatened vernal pool fairy shrimp (*Branchinecta lynchi*), the federally listed as endangered Conservancy fairy shrimp (*Branchinecta conservatio*), the federally listed as endangered vernal pool tadpole shrimp (*Lepidurus packardi*), and the rare nonlisted "Mid-Valley" fairy shrimp. Three non-special-status fairy shrimp species also have the potential to occur within the proposed project areas: *Branchinecta coloradensis, Branchinecta lindahli,* and *Linderiella occidentalis.*

Surveys were performed between March 16 and May 7, 1998. Twenty-six days were spent in the field. Aerial photographs and existing data from DWR were used to select areas most likely to support special-status shrimp habitat. An effort was made to focus surveys in these areas. Because of delays in obtaining property access from private landowners, much of the potential habitat was dry at the time of survey; therefore, potential habitat was mapped conservatively and it is likely that the results of this study represent a high estimate of habitat extent. Surveys conducted using the approved U.S. Fish and Wildlife Service (USFWS) protocol could result in identification of a lesser amount of potential special-status shrimp habitat.

Potential special-status shrimp habitat for the purpose of this study is defined as:

- seasonal wetlands of sufficient size (depth and area) or supporting specific vegetation that indicate the potential for ponding for a sufficient duration to allow special-status shrimp species to complete their life cycles and to maintain water temperatures conducive to special-status shrimp species, or

- seasonal stockponds or other artificial wetlands that become dry in late spring or early summer and support the above conditions.

Habitats fulfilling the above criteria were mapped on U.S. Geological Survey (USGS) 7.5-minute quadrangle maps and the data were digitized into a geographic information system (GIS) layer. GIS was used to calculate habitat extent in acres.

SETTINGS AND RESULTS

Red Bank Project Area

Environmental Setting

The Red Bank potential offstream storage site is approximately 20 miles west of Red Bluff. It comprises two main components: Schoenfield Reservoir on Red Bank Creek and Dippingvat

Reservoir on South Fork Cottonwood Creek. Two smaller components include Lanyan Dam and Bluedoor Reservoir on North Fork Red Bank Creek. The terrain at this site is generally too sloped to support habitat suitable for special-status shrimp species. DWR staff members conducting the botanical, wetlands, wildlife, and geological studies indicated that there was very little to no potential habitat in any of the component cells of this project area.

Results

The Red Bank potential offstream reservoir site does not support suitable habitat for special-status shrimp species and is considered outside of the range of special-status shrimp species.

Thomes-Newville Project Area

Environmental Setting

The Thomes-Newville site is located in a valley at the base of the interior Coast Ranges on the Glenn County and Tehama County borders. It is bordered on the west by the interior Coast Ranges, on the east by Rocky Ridge, and on the north by the Williams Buttes, and extends south to approximately 1 mile south of the town of Chrome. This site is characterized by grassland and vernal pools on clay soils and Lodo shale in foothill-type terrain. Cattle grazing is the primary agricultural practice in this area.

Results

During the 1998 surveys, 25.6 acres of potential special-status shrimp habitat was mapped at the Thomes-Newville site (Table A-2). Potential habitat consisted predominantly of vernal pools and ephemeral stockponds.

Sites Project Area

Environmental Setting

The Sites project area is located in the Antelope Valley at the base of the interior Coast Ranges on the Glenn County and Colusa County borders. This site extends from Squaw Flat to a line extending from the Glenn County and Colusa County border on Logan Ridge, northwest to the

north end of Seminary Ridge. It is bordered on the west by the interior Coast Ranges and on the east by Logan Ridge. Grasslands and vernal pools on heavy clay soils in basin terrain characterize the area, with low ridgelines near the valley margins. Clay slumps are common along the ridges and clay flats occur in low-lying areas. The land is currently used for cattle and sheep grazing.

Results

During the 1998 surveys, 73.04 acres of potential special-status shrimp habitat were mapped at the Sites site (Table A-3). Potential habitat was predominantly vernal pools, alkali flats, clay flats, and ephemeral stockponds.

Colusa Project Area

Environmental Setting

The Colusa site is located in Antelope Valley at the base of the interior Coast Ranges in Glenn and Colusa Counties. The site extends from the Glenn County and Colusa County borders on Logan Ridge, northwest to the north end of Seminary Ridge to the southern end of Antelope Valley, and is bordered on the west by the interior Coast Ranges and on the east by Logan Ridge. The terrain is characterized by grassland and vernal pools on heavy clay soils in basin terrain with low ridgelines near the valley margins. Clay slumps are common along the ridges and clay flats occur in low-lying areas. Cattle grazing is the main agricultural practice in the area.

Results

During the 1998 surveys, 11.84 acres of potential special-status shrimp habitat were mapped at the Colusa project site (Table A-4). Potential habitat was predominantly vernal pools, clay flats, and ephemeral stockponds.

Sites/Colusa Project Area

Environmental Setting

The Sites/Colusa project area is a combination of the Sites and Colusa projects. This alternative encompasses the Antelope Valley at the base of the interior Coast Ranges on the Glenn

County and Colusa County borders. The area extends from Squaw Flat to the southern end of Antelope Valley and is bordered on the west by the interior Coast Ranges and on the east by Logan Ridge. The site is characterized by grasslands and vernal pools on heavy clay soils in basin terrain, with low ridgelines near the valley margins. Clay slumps are common along the ridges and clay flats occur in low-lying areas. This land is mainly used for cattle and sheep grazing.

Results

During the 1998 surveys, a 84.88 acres of potential special-status shrimp habitat were mapped for the site. Potential habitat was predominantly vernal pools, alkali flats, clay flats, and ephemeral stockponds.

GENERAL DISCUSSION

The highest quality, contiguous potential special-status shrimp habitat that has been affected the least is at the Thomes-Newville project site. A greater extent of habitat occurs at the Sites project site area; however, this habitat is degraded by cattle activity, erosion, and debris from cattle-feeding areas. The potential special-status shrimp habitat at the Colusa project site is similarly degraded by cattle, although not to the extent of the Sites site. Implementation of the proposed Red Bank project would not result in impacts on special-status shrimp or special-status shrimp habitat.

If you have any questions about the content or conclusions of this report, please contact me.

Sincerely,

D. Christopher Rogers

Christopher Rogers
Invetebrate Ecologist

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Enclosures

Jones & Stokes Associates, Inc.
2600 V Street, Suite 100 • Sacramento, CA 95818-1914 • Fax 916/737-3030 • 916/737-3000

Appendix A. Results of Survey of Potential Special-Status Shrimp Habitat

Table A-1. Total Acreage of Potential Special-Status Shrimp Habitat

Potential Reservoir Site	Extent of Potential Special-Status Shrimp Habitat (acres)
Red Bank	0.0
Thomes-Newville	25.56
Sites	73.04
Colusa	11.84
Sites/Colusa	84.88

Timing depends on agricultural and erosion perspective

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